



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE

United States Patent and Trademark Office

Address: COMMISSIONER FOR PATENTS

P.O. Box 1450

Alexandria, Virginia 22313-1450

www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/577,100	04/25/2006	Marcel Francois Heertjes	NL 031280	1212
24737 7590 06/30/2008 PHILIPS INTELLECTUAL PROPERTY & STANDARDS P.O. BOX 3001 BRIARCLIFF MANOR, NY 10510				
EXAMINER				
CHU, KIM KWOK				
ART UNIT		PAPER NUMBER		
2627				
MAIL DATE		DELIVERY MODE		
06/30/2008		PAPER		

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

### Office Action Summary

**Application No.**

10/577,100

**Applicant(s)**

HEERTJES ET AL.

**Examiner**

KIM CHU

**Art Unit**

2627

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on Pre-Amendment filed on 4/25/2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1 and 7-18 is/are rejected.
- 7) ☒ Claim(s) 2-6 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 25 April 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

***Claim Rejections - 35 USC § 112***

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2 Claims 1-9, 14, 17 and 18 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

(a) in Claim 1, line 17, the term "critical frequency" is not clear because of its nature, for example, shock, is not defined. In other words, without clarifying what is the "critical frequency", any frequency, such as a selected servo reference frequency, a low frequency or a system clock etc. can be considered as Applicant's critical frequency.

(b) in Claim 1, last third and fourth lines, the phrase "in a predefined range corresponding to said critical frequency" is not clear because a frequency range cannot correspond to a single critical frequency. For example, the whole frequency range of the signal components is selected but it is not reasonable to represent by a single frequency.

(c) in Claim 1, last two lines, the phrase "for signal components having a frequency outside said range" is not clear

because the signal components provide a range of frequency/signals such as focusing, position, tilting, RF etc. Applicant should clarify what is the signal component's frequency outside the signal component's frequency range.

(d) in Claim 4, the limitation "shock threshold" is not clear. In order to understand the setting of gain values with respect to the critical frequency and the shock threshold, Applicant should define the relation between the claimed "critical frequency" and the unclear limitation "shock threshold".

3. The claims not specifically mentioned above are indefinite based upon their dependence on the indefinite Claim 1.

**Claim Rejections - 35 USC § 102**

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. § 102 that form the basis for the rejections under this section made in this Office action:

*A person shall be entitled to a patent unless -  
(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.*

5. Claims 1 and 7-18, are rejected under 35 U.S.C. § 102(e) as being anticipated by Yonezawa (U.S. Patent 7,215,606).

6. Yonezawa teaches a method for controlling a disc drive apparatus having all of the means and steps as recited in claims 1, 7-9, 14, 17 and 18. For example, Yonezawa teaches the following:

(a) with respect to Claim 1, the disc drive apparatus comprising: scanning means 10 (Fig. 1; scanning means is the optical head) for scanning a record track of a disc 3, 4, the scanning means 10 comprising at least one read/write element (laser) to be positioned with respect to the disc 3, 4, and at least one detector 9 (Fig. 1) for generating a read signal (Fig. 1; column 4, lines 20-23, line 51); actuator means 15 and 22-24 (Fig. 1; servo positioning means) for controlling the positioning of the at least one read/write element (Fig. 1; focusing, tracking and tilting positions are controlled); a

control circuit 16, 18, 20 (Fig. 1; column 5, lines 4-6) for receiving the read signal and generating at least one actuator control signal on the basis of at least one signal component (focusing or tracking) of the read signal (Figs. 6), the control circuit having at least one variable gain (Fig. 1; gain adjuster 18 varies the gain); the control circuit 16, the actuator means 15, 22-24, the read/write element (laser source), and the detector 9 defining a control loop having a critical frequency (Fig. 1; disturbance can be considered as an unwanted occurrence); the method comprising the steps of: for signal components (focusing, tracking or tilting signals) having a frequency in a predefined range (abnormal operation) corresponding to the critical frequency (disturbance), selectively setting the gain (from gain adjuster 18) to a value lower than a value for signal components having a frequency outside the range (Figs. 6 and 8; step ST13; column 7, lines 22-27; column 8, lines 17-22).

(b) with respect to Claim 7, the actuator means 15 and 22-24 comprises a radial actuator 15, 23 (Fig. 1; tracking position is the radial actuator), and wherein the variable gain is a gain in the radial control loop for controlling the radial actuator (Fig. 6; steps ST3 and ST13; gain adjuster 18 compensates the position actuator).

(c) with respect to Claim 8, the actuator means 22 comprises a focal actuator (Fig. 1), and wherein the variable gain (from gain adjuster 18) is a gain in the focal control loop for controlling said focal actuator (Fig. 9; steps ST30 and ST32; gain adjuster 18 compensates the position actuator).

(d) with respect to Claim 9, the actuator means 24 comprises a tilt actuator 24 (Fig. 1), and wherein the variable gain (from gain adjuster 18) is a gain in the tilt control loop for controlling said tilt actuator (Fig. 1).

(e) with respect to Claim 14, the disc drive apparatus comprising: scanning means 10 (Fig. 1; optical head) for scanning a record track of a disc (Fig. 3), the scanning means 10 comprising at least one read/write element 28 to be positioned with respect to the disc (Fig. 4), and at least one detector 9 for generating a read signal (Fig. 4); actuator means (focusing, positioning and tilting actuators) for controlling the positioning of the at least one read/write element 28 (Figs. 1 and 4); a control circuit 20, 30 (Fig. 1) for receiving the read signal and generating at least one actuator control signal (focusing, position and tilt controls) on the basis of at least one signal component of read signal (signal components are focusing error, position error and tilt error etc.), the control circuit 18, 20 and 30 having at least one variable gain (from

Art Unit: 2627

gain adjuster 18); the control circuit 18, 20 and 30, the actuator means, the read/write element 28, and the detector 9 defining a control loop (Fig. 2) having a critical frequency (disturbance/abnormal signal); the control circuit 18, 20 and 30 being adapted to perform the disc drive control (Figs. 1 and 2).

(f) with respect to Claim 17, the actuator means is designed for controlling a radial (tracking) position of the at least one read/write element 28 (Fig. 4) and/or for controlling an axial (focusing) position of the at least one read/write element 28 (Fig. 4) and/or for controlling an tilt position of the at least one read/write element 28 (Fig. 1; tilt adjustment circuit 24 controls the tilt position).

(g) with respect to Claim 18, the detector 9 comprises an optical detector (Fig. 4).



7. Yonezawa teaches a control circuit for use in a disc drive having all of the elements and means as recited in claims 10-13, 15 and 16. For example, Yonezawa teaches the following:

(a) with respect to Claim 10, the control circuit 18, 20 (Fig. 1) for use in a disc drive apparatus, comprising: an input 10 (Fig. 1; optical head is the input) for receiving a read signal from a detector 9 (Fig. 1; column 4, lines 51-58); at least one output (focus, position, tilt etc.) for providing at least one actuator control signal (focus, position, tilt etc.) on the basis of at least one signal component (focus, position, tilt etc.) of the read signal; the control circuit 18, 20 having a variable gain (Fig. 1; gain adjuster); the control circuit 18, 20 being adapted to set its gain depending on whether or not shocks are experienced (Fig. 1; from disturbance and position error means), and/or depending on the magnitude of shocks (Fig. 2; shock is the disturbance such as rotation and position errors); the control circuit 18, 20 comprising a dynamic filter 51 which attenuates signal components having a frequency within a predefined frequency range (Fig. 2; filter attenuates signal under a frequency bandwidth).

(b) with respect to Claim 11, the dynamic filter 51 comprises a notch filter (Fig. 2; the notch filter is only active on certain frequency bandwidth).

(c) with respect to Claim 12, the dynamic filter 51 comprises a low-pass filter (Fig. 2; high frequency noises are filtered out in the gain controlling circuit).

(d) with respect to Claim 13, a variable amplifier which comprises: a constant amplifier part providing a constant gain; and a variable amplifier part (299B) providing a variable gain; wherein the dynamic filter 51 is arranged at the input of the variable amplifier part (Figs. 2 and 11; gain controller 53 is a circuit consists of constant amplifiers and variable amplifiers such as Fig. 11).

(e) with respect to Claim 15, a disc drive apparatus comprising: scanning means 10 (Fig. 1; optical head) for scanning a record track of a disc (Fig. 3), the scanning means 10 comprising at least one read/write element 28 to be positioned with respect to the disc (Fig. 4), and at least one detector 9 for generating a read signal (Fig. 4); actuator means (focusing, positioning and tilting actuators) for controlling the positioning of the at least one read/write element 28 (Figs. 1 and 4); a control circuit 20, 30 (Fig. 1) for receiving the read signal and generating at least one actuator control signal (focusing, position and tilt controls) on the basis of at least one signal component of read signal (signal components are focusing error, position error and tilt error etc.), the control

Art Unit: 2627

circuit 18, 20 and 30 having at least one variable gain (from gain adjuster 18); the control circuit 18, 20 and 30, the actuator means, the read/write element 28, and the detector 9 defining a control loop (Fig. 2) having a critical frequency (disturbance/abnormal signal).

(f) with respect to Claim 16, the predefined frequency range of the dynamic filter 51 (Fig. 2) corresponds to the critical frequency (disturbance/abnormal errors) of the control loop (Fig. 2).

***Allowable Subject Matter***

8. Claims 2-6 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

9. The following is an Examiner's statement of reasons for the indication of allowable subject matter:

As in claim 2, the prior art of record fails to teach or fairly suggest that the gain has a constant value for signal components having a magnitude below a predefined shock threshold; wherein, for signal components having a magnitude above the predefined shock threshold, the gain is increased by a variable value; wherein the gain increase is lower for signal components having a frequency inside the predefined range as compared to the gain increase for signal components having a frequency outside the range.

As in claim 4, the prior art of record fails to teach or fairly suggest that the steps of: receiving the read signal; dynamically filtering the read signal; applying a first gain to filtered signal components having a magnitude below a predefined shock threshold, and applying a second gain higher than the first gain to filtered signal components having a magnitude

Art Unit: 2627

above the predefined shock threshold.

The features indicated above, in combination with the other elements of the claims, are not anticipated by, nor made obvious over, the prior art of record.

***Related Prior Art***

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Chen et al. (6,437,936) is pertinent because Chen teaches a gain compensation means for a disc drive servo system.

Supino et al. (5,982,721) is pertinent because Supino teaches a gain adjustment means for a disc drive servo system.

Bates (5,367,513) is pertinent because Bates teaches a gain adjustment means for a focusing and tracking servo decoupling system.

Art Unit: 2627

11. Any inquiry concerning this communication or earlier communication from the examiner should be directed to Kim CHU whose telephone number is (571) 272-7585 between 9:30 am to 6:00 pm, Monday to Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hoa Nguyen, can be reached on (571) 272-7579.

The fax number for the organization where this application or proceeding is assigned is (571) 273-8300

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished application is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9191 (toll free).

/Kim-Kwok CHU/

Examiner AU2627

May 29, 2008  
(571) 272-7585

/HOA T NGUYEN/

Supervisory Patent Examiner, Art Unit 2627